



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,394	03/23/2004	Yoshinori Watanabe	8031-1034	2342

466 7590 08/08/2007
YOUNG & THOMPSON
745 SOUTH 23RD STREET
2ND FLOOR
ARLINGTON, VA 22202

EXAMINER

YUN, EUGENE

ART UNIT	PAPER NUMBER
----------	--------------

2618

MAIL DATE	DELIVERY MODE
-----------	---------------

08/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/806,394	WATANABE ET AL.	
	Examiner	Art Unit	
	Eugene Yun	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii (JP 09-033584-IDS) in view of Kouyoumjian (IEEE, Vol. 62, No. 11-IDS).

Referring to Claim 1, Fujii teaches A radio-wave propagation characteristic forecasting system for performing ray launching for obtaining a passage time and an intensity when a structure having an edge, a transmission point, and a reception point are provided in an observation space defined in a three-dimensional space (see first page of English translated ABSTRACT), a plurality of radio-wave rays is radiated from the transmission point at different angles, and the rays repeat reflection and transmission due to collision with the structure caused by their progress and pass the vicinity of the reception point while repeating the reflection and transmission (see second page of English translated ABSTRACT).

Fujii does not teach ray spread defining means for defining a ray spread provided as a function of propagation distances from the transmission point to the rays;

distance calculating means for calculating the distance between each of the rays and the edge;

radius calculating means for obtaining a point on each of the rays and a point on an edge for deciding the distance and calculating a ray spread radius to the distance from the point on each of the rays up to the transmission point; and

diffracted-ray generating means for generating a plurality of diffracted rays by using the point on the edge as a diffraction point when the ray spread radius is equal to or larger than the distance between each of the rays and the edge.

Kouyoumjian teaches ray spread defining means for defining a ray spread provided as a function of propagation distances from the transmission point to the rays (see fig. 2 and (4), and (5) in pg. 1450);

distance calculating means for calculating the distance between each of the rays and the edge (see last paragraph on second column on pg. 1450);

radius calculating means for obtaining a point on each of the rays and a point on an edge for deciding the distance and calculating a ray spread radius to the distance from the point on each of the rays up to the transmission point (see first column on pg. 1451 and fig. 5a); and

diffracted-ray generating means for generating a plurality of diffracted rays by using the point on the edge as a diffraction point when the ray spread radius is equal to or larger than the distance between each of the rays and the edge (see first paragraph in the second column on pg. 1451).

Claims 7 and 13 have similar limitations as Claim 1.

Referring to Claims 2 and 8, Kouyoumjian also teaches the ray spread defining means defined as a function in which the radius of the ray spread increases as the propagation distance of each of the rays from the transmission point increases (see first column on pg. 1451 and fig. 5a).

Referring to Claims 3 and 9, Kouyoumjian also teaches the diffracted-ray generating means using the line connecting the diffraction point with the transmission point, or a line connecting the diffraction point with a dummy transmission point obtained from a reflection point, transmission point, and diffraction point which are the closest to the rays as an incoming ray for generating the diffracted rays (see second paragraph of second column on pg. 1451).

Referring to Claims 4 and 10, Kouyoumjian also teaches the diffracted-ray generating means using a crossing segment between the ray spread and the edge as an aggregate of diffraction points, assigns a predetermined number of diffracted rays in the collective region of diffracted rays generated by using the aggregate of the diffraction points as a wave source, and moreover assigns the ray spread to each diffracted ray (see second paragraph of second column on pg. 1451).

Referring to Claims 5 and 11, Kouyoumjian also teaches the diffracted-ray generating means assuming a plurality of virtual planes contacting with the edge, generating reflected waves respectively using the incoming ray as an incoming wave on each virtual plane, and using these reflected waves as diffracted rays (see last 20 lines of second column of pg. 1450).

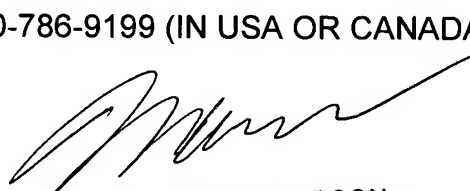
Referring to Claims 6 and 12, Kouyoumjian also teaches the means executed in parallel every azimuth of a ray using the transmission point as a starting point (see fig. 7).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eugene Yun whose telephone number is (571) 272-7860. The examiner can normally be reached on 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew D. Anderson can be reached on (571)272-4177. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



MATTHEW ANDERSON
SUPERVISORY PATENT EXAMINER



Eugene Yun